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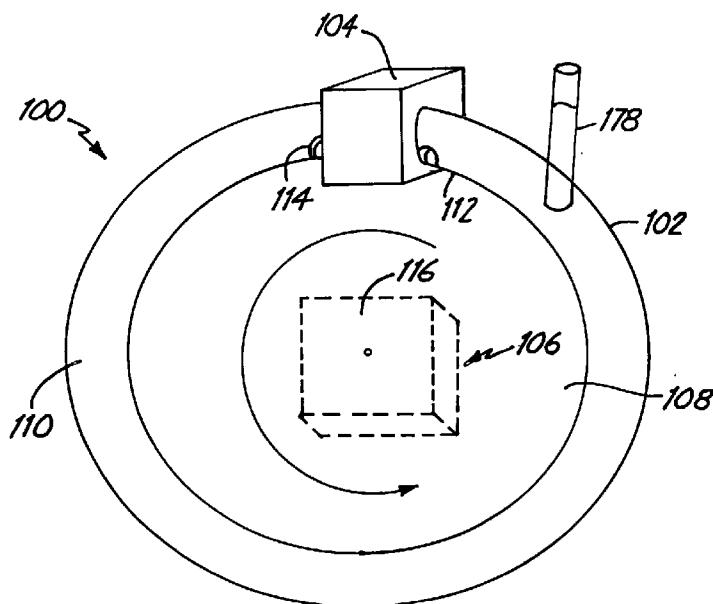
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(54) Title: FLOW SYSTEM FOR MEDICAL DEVICE EVALUATION AND PRODUCTION



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(57) Abstract: In some embodiments, a flow system includes a medical device mount, fluid and a conduit containing the fluid and medical device mount. The conduit is mounted on an assembly that moves the conduit along with the medical device mount to induce relative motion of the fluid relative to the medical device mount. In preferred embodiments, pulsatile fluid motion is generated. In some embodiments, the fluid includes viable cells. In alternative embodiments, a flow system includes a continuous flow pump connected to a conduit loop having multiple branch conduits downstream from the pump providing alternative paths over a section of the conduit loop. Each branch conduit has a valve controlling flow through the branch. In some embodiments, at least one branch includes a medical device mount.

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20 November 2003

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/US 02/04799

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 A61F2/24

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 450 710 A (NETTEKOVEN WILLIAM S) 29 May 1984 (1984-05-29)  column 2, line 3 -column 3, line 59	1-8, 15-17, 20,22, 24-28
Y	---	10-14
Y	US 5 827 729 A (HALBERSTADT CRAIG R ET AL) 27 October 1998 (1998-10-27) column 7, line 43 -column 16, line 20 ---	10-14
A	US 4 546 642 A (SWANSON WILBUR M) 15 October 1985 (1985-10-15) column 2, line 67 -column 6, line 2 -----	1-30

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

° Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the international filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

7 November 2002

Date of mailing of the international search report

06.03.2003

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## INTERNATIONAL SEARCH REPORT

### Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1.  Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
  
2.  Claims Nos.: because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3.  Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

### Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1.  As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2.  As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3.  As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4.  No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-30

#### Remark on Protest

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.

**INTERNATIONAL SEARCH REPORT**

International Application No. PCT/US 02/04799

**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

**1. Claims: 1-30**

An apparatus comprising a medical device mount, fluid and a conduit, wherein the conduit is mounted on an assembly that moves the conduit along with the medical device mount to induce relative motion of the fluid relative to the medical device mount.

**2. Claims: 31-32**

An apparatus comprising a fluid and a conduit containing the fluid, wherein the fluid comprises cells and the conduit is mounted on an assembly that moves the conduit to induce relative motion of the fluid relative to the conduit.

**3. Claims: 33-46**

An apparatus comprising a continuous flow pump connected to a conduit loop having multiple branch conduits downstream from the pump providing alternative paths over a section of the conduit loop, each branch conduit having a valve controlling flow through the branch.

## INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/US 02/04799

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
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